## Claims

What is claimed is:

1. A method for organizing and compressing spatial data, said data comprising a multitude of data entities described by topography and attributes, comprising the steps of:

   Parsing the entire data set, selecting data entities within a specified bounded rectangle defined as a level 2 segment, and loading subsets of each selected data entity into the computers main memory;

   Organizing the selected data set by separating topographic information from attribute information;

   Segmenting said level 2 segment into $K_1 = k \bullet k$ evenly sized rectangles defined as level 1 segments, further segmenting each of the $K_1$ level 1 segments into $K_0 = k \bullet k$ evenly sized rectangles defined as level 0 segments, each of the $K_0$ and $K_1$ segments still comprising both topographic and attribute information;

   Reducing the size of level 1 and level 2 segments by eliminating a subset of the data entities comprising topographic and attribute information, and by cutting some data points from certain topographic structures;

   Reducing the size of all segments by transforming all geodetic coordinates from a real number format to an integer number format within the range of 0 to 65535, allowing each number to be stored in computer memory with just two bytes;

   Generating a file name for each of the segments such that the file name comprises partial location information representing an offset from the earth's origin chosen to be the North Pole;

   Repeating all of the above steps until the entire spatial database has been processed;

2. The method according to claim 1, where a level 2 segment comprises a geographic area of 1° longitude and ½° latitude;

3. The method according to claim 1, where $k = 8$ so that each level 2 segment contains exactly 64 level 1 segments, and each level 1 segment contains exactly 64 level 0 segments;

4. The method according to claim 1, where topographic information comprises n-dimensional data structures;

5. The method according to claim 4, where topographic information comprises 2-dimensional data such as road networks and 3-dimentional data such as buildings, and where attributes comprise textual descriptions of topographic structures;

6. The method according to claim 1, where level 1 and level 2 segments are reduced in size by eliminating all data entities of features which are not needed for map display at these levels, in particular comprising roads classified as secondary for level 1 and level 2 segments, and roads classified as primary for level 2 segments, as well as other features deemed unnecessary when showing large area maps;

7. The method according to claim 1, where level 1 and level 2 segments are reduced in size by eliminating a subset of all data entities of certain features which are comprised

of polygons such as lakes, said subset comprising data entities which cover small geographic areas;

8. The method according to claim 1, where the algorithm used to cut data points from certain topographic structures applies angle comparisons between adjacent lines of a topographic structure such as a road or river segment, and where the algorithm dictates to eliminate data points for which the angle between its two adjacent lines falls within a certain threshold around 180°, meaning that the two adjacent lines are only slightly curved;

9. The method according to claim 1, where the earth is structured as a p•p level 2 grid, where each level 2 segment is structured as a q•q level 1 grid and as a r•r level 0 grid, such that the computed file names have the form px.py.z for level 2 segments, px.py.qx.qy.z for level 1 segments and px.py.rx.ry.z for level 0 segments, where z is either a number or a letter representing the level;

10. The method according to claim 1, where the earth is structured as a p•p level 2 grid, where each level-2 segment is structured as a q•q level 1 grid and each level 1 segment is structured as a r•r level 0 grid, such that the computed file names have the form px.py.z for level 2 segments, px.py.qx.qy.z for level 1 segments and px.py.qx.qy.rx.ry.z for level 0 segments, where z is either a number or a letter representing the level;

11. The method according to claim 1, where the earth is structured as a p•p level 2 grid, as a q•q level 1 grid and as a r•r level 0 grid, such that the computed file names for level 2 segments have the form px.py.z for level 1 qx.qy.z and for level 0 rx.ry.z;

12. The method according to claim 1, 9, 10 or 11, where the chosen origin of the earth is a point other than the North Pole;

13. The method according to claim 1, where m•n level 2 segments are combined to form a level 3 segment representing a wider geographic area such as a state, country or continent;

14. The method according to claim 1, 7, 8 or 13, where the data size of the level 3 segment is reduced by means of eliminating subsets of data entities comprised of polygons which are smaller than a certain predetermined size, and by further cutting data points using the algorithm as described in claim 8, possibly increasing the angle range from the one used to process level 2 segments;

15. An electronic apparatus comprising means for processing and displaying digital data, and means for communicating with a remote server via a wired or wireless network;

16. An apparatus according to claim 15 executing instructions supplied by a map display engine, said map display engine processing user input instructions, computing data files names based on geodetic coordinates and in accordance with user instructions, and fetching said computed data files from a server via a network;

17. An apparatus according to claim 15 or 16, having means for calculating its own position and allowing the map display engine to use the position information as an input based on which said map display engine computes data file names;